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CLAIMS

1.   A wireless communication apparatus which has
wireless communication means for communicating with a
mobile wireless communication device and executes
5   predetermined processing on the basis of received
information, characterized by comprising:
        instructing means for instructing to start
authentication processing in order to start
communicating with a wireless communication device;
10   transmission means for transmitting a search
signal containing verification data by the wireless
communication means when a start of authentication is
instructed by said instructing means; and
        authentication means for, when a response signal
15   is received by the wireless communication means from
one wireless communication device after the search
signal is transmitted by said transmission means and
when the verification data is contained in the response
signal transmitting authentication information to the
20   wireless communication device.
        2.   A wireless communication apparatus which has
wireless communication means for communicating with a
mobile wireless communication device and executes
predetermined processing on the basis of received
25   information, characterized by comprising:
        instructing means for instructing to start
authentication processing in order to start

communicating with a wireless communication device;

transmission means for transmitting a search signal containing response time interval data by the wireless communication means when a start of

5 authentication is instructed by said instructing means; and

authentication means for, when a response signal is received by the wireless communication means from one wireless communication device at the response time

10 intervals after the search signal is transmitted by said transmission means, transmitting authentication information to the wireless communication device.

3.   A wireless communication apparatus which has wireless communication means for communicating with a

15 mobile wireless communication device and executes predetermined processing on the basis of received information, characterized by comprising:

detection means for detecting an intensity of a signal received by the wireless communication means;

20   instructing means for instructing to start authentication processing in order to start communicating with a wireless communication device;

transmission means for transmitting a predetermined search signal by using the wireless

25 communication means when a start of authentication is instructed by said instructing means; and

authentication means for, when a response signal

is received by the wireless communication means from

one wireless communication device a plurality of number

of times after the search signal is transmitted by said

transmission means and when an absolute value of a

5   reception intensity difference between the response

signals is larger than a predetermined threshold T1 and

less than a predetermined threshold T2 (T2 > T1 > 0),

transmitting authentication information to the wireless

communication device.

10 4.   A wireless communication apparatus which has

wireless communication means for communicating with a

mobile wireless communication device and executes

predetermined processing on the basis of received

information, characterized by comprising:

15   instructing means for instructing to start

authentication processing in order to start

communicating with a wireless communication device;

        setting means for setting an authentication area

narrower than a communicative area after authentication

20 with respect to the wireless communication means when a

start of authentication is instructed by said

instructing means;

        transmission means for transmitting a

predetermined search signal by the wireless

25 communication means after the authentication area is

set by said setting means; and

        authentication means for, when a response signal

is received by the wireless communication means from
one wireless communication device after the search
signal is transmitted from said transmitting means,
transmitting authentication information to the wireless

5   communication device.

5.   A wireless communication apparatus which
communicates with a mobile wireless communication
device and executes predetermined processing,
characterized by comprising:

10   wireless communication means for switching a
normal mode based on authentication information and an
authentication mode of performing communication in an
authentication area range narrower than an area range
in the normal mode;

15   detection means for detecting an intensity of a
signal received by the wireless communication means;
           instructing means for instructing to start
authentication processing in order to start
communicating with a wireless communication device;

20   transmission means for setting the wireless
communication means in the authentication mode and
transmitting a search signal containing verification
data and response time interval data when a start of
authentication is instructed by said instructing means;

25   and

           authentication means for, when the response
signal containing the verification data is received by

the wireless communication means from one wireless

communication device at the response time intervals

after the search signal is transmitted from said

transmission means and when an absolute value of a

5   reception intensity difference between the response

signals detected by said detection means is larger than

a predetermined threshold T1 and less than a

predetermined threshold T2 (T2 > T1 > 0), transmitting

authentication information to the wireless

10   communication device.

6.   An electronic device including wireless

communication means for communicating with a

predetermined wireless communication apparatus and

transmitting information of a processing target,

15   characterized by comprising:

       instructing means for instructing to start

authentication processing in order to start

communicating with a wireless communication apparatus;

       first reception means for receiving a search

20   signal by the wireless communication means when a start

of authentication is instructed by said instructing

means;

       transmission means for transmitting a response

signal containing verification data contained in

25   received search information through the wireless

communication means; and

       second reception means for receiving

authentication information through the wireless

communication means after transmission is performed by

said transmission means,

    wherein when authentication information is

5   received by said second reception means, communication

is subsequently performed with the wireless

communication apparatus on the basis of the

authentication information.

    7.   An electronic device including wireless

10 communication means for communicating with a

predetermined wireless communication apparatus and

transmitting information of a processing target,

characterized by comprising:

    instructing means for instructing to start

15 authentication processing in order to start

communicating with a wireless communication device;

    setting means for setting an authentication area

narrower than a communicative area after authentication

with respect to the wireless communication means when a

20 start of authentication is instructed by said

instructing means;

    first reception means for receiving a

predetermined search signal by the wireless

communication means after the authentication area is

25 set by said setting means;

    transmission means for transmitting a response

signal through the wireless communication means in

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accordance with reception by said first reception

means; and

second reception means for receiving

authentication information through the wireless

5   communication means after transmission by said

transmission means,

wherein when authentication information is

received by said second reception means, communication

is subsequently performed with the wireless

10   communication apparatus on the basis of the

authentication information.

8.   An electronic device including wireless

communication means for communicating with a

predetermined wireless communication apparatus and

15   transmitting information of a processing target,

characterized by comprising:

instructing means for instructing to start

authentication processing in order to start

communicating with a wireless communication device;

20   setting means for setting an authentication area

narrower than a communicative area after authentication

with respect to the wireless communication means when a

start of authentication is instructed by said

instructing means;

25   first reception means for receiving a

predetermined search signal by the wireless

communication means after the authentication area is

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set by said setting means;

transmission means for transmitting a response

signal, containing verification data contained in

received search information, through the wireless

5   communication means at time intervals based on time

interval instruction information contained in the

search information; and

second reception means for receiving

authentication information through the wireless

10   communication means after transmission by said

transmission means,

wherein when authentication information is

received by said second reception means, communication

is subsequently performed with the wireless

15   communication apparatus on the basis of the

authentication information.

9.   A control method for a wireless communication

apparatus which has wireless communication means for

communicating with a mobile wireless communication

20   device and executes predetermined processing on the

basis of received information, characterized by

comprising:

an instructing step of instructing to start

authentication processing in order to start

25   communicating with a wireless communication device;

a transmission step of transmitting a search

signal containing verification data by the wireless

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communication means when a start of authentication is instructed in the instructing step; and

an authentication step of, when a response signal is received by the wireless communication means from

5   one wireless communication device after the search signal is transmitted in the transmission step and when the verification data is contained in the response signal transmitting authentication information to the wireless communication device.

10   10.   A control method for a wireless communication apparatus which has wireless communication means for communicating with a mobile wireless communication device and executes predetermined processing on the basis of received information, characterized by

15   comprising:

an instructing step of instructing to start authentication processing in order to start communicating with a wireless communication device;

a transmission step of transmitting a search

20   signal containing response time interval data by the wireless communication means when a start of authentication is instructed in the instructing step; and

an authentication step of, when a response signal

25   is received by the wireless communication means from one wireless communication device at the response time intervals after the search signal is transmitted in the

transmission step, transmitting authentication

information to the wireless communication device.

11.   A control method for a wireless communication

apparatus which has wireless communication means for

5   communicating with a mobile wireless communication

device and executes predetermined processing on the

basis of received information, characterized by

comprising:

a detection step of detecting an intensity of a

10 signal received by the wireless communication means;

an instructing step of instructing to start

authentication processing in order to start

communicating with a wireless communication device;

a transmission step of transmitting a

15 predetermined search signal by using the wireless

communication means when a start of authentication is

instructed in the instructing step; and

an authentication step of, when a response signal

is received by the wireless communication means from

20 one wireless communication device a plurality of number

of times after the search signal is transmitted in the

transmission step and when an absolute value of a

reception intensity difference between the response

signals is larger than a predetermined threshold T1 and

25 less than a predetermined threshold T2 (T2 > T1 > 0),

transmitting authentication information to the wireless

communication device.

12.   A control method for a wireless communication
apparatus which has wireless communication means for
communicating with a mobile wireless communication
device and executes predetermined processing on the
5   basis of received information, characterized by
comprising:

an instructing step of instructing to start
authentication processing in order to start
communicating with a wireless communication device;

10   a setting step of setting an authentication area
narrower than a communicative area after authentication
with respect to the wireless communication means when a
start of authentication is instructed in the
instructing step;

15   a transmission step of transmitting a
predetermined search signal by the wireless
communication means after the authentication area is
set in the setting step; and

an authentication step of, when a response signal
20   is received by the wireless communication means from
one wireless communication device after the search
signal is transmitted in the transmitting step,
transmitting authentication information to the wireless
communication device.

25   13.   A control method for a wireless communication
apparatus which communicates with a mobile wireless
communication device and executes predetermined

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processing, characterized by comprising:

a wireless communication switching step of switching predetermined wireless communication means between a normal mode based on authentication

5   information and an authentication mode of performing communication in an authentication area range narrower than an area range in the normal mode;

a detection step of detecting an intensity of a signal received by the wireless communication means;

10   an instructing step of instructing to start authentication processing in order to start communicating with a wireless communication device;

a transmission step of setting the wireless communication means in the authentication mode and

15   transmitting a search signal containing verification data and response time interval data when a start of authentication is instructed in the instructing step; and

an authentication step of, when the response

20   signal containing the verification data is received by the wireless communication means from one wireless communication device at the response time intervals after the search signal is transmitted in the transmission step and when an absolute value of a

25   reception intensity difference between the response signals detected in the detection step is larger than a predetermined threshold T1 and less than a

predetermined threshold T2 (T2 > T1 > 0), transmitting
authentication information to the wireless
communication device.

14.   A control method for an electronic device
5   including wireless communication means for
communicating with a predetermined wireless
communication apparatus and transmitting information of
a processing target, characterized by comprising:

an instructing step of instructing to start
10   authentication processing in order to start
communicating with a wireless communication apparatus;

a first reception step of receiving a search
signal by the wireless communication means when a start
of authentication is instructed in the instructing
15   step;

a transmission step of transmitting a response
signal containing verification data contained in
received search information through the wireless
communication means; and

20   a second reception step of receiving
authentication information through the wireless
communication means after transmission is performed in
the transmission step,

wherein when authentication information is
25   received in the second reception step, communication is
subsequently performed with the wireless communication
apparatus on the basis of the authentication

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information.

15.   A control method for an electronic device including wireless communication means for communicating with a predetermined wireless communication apparatus and transmitting information of a processing target, characterized by comprising:

an instructing step of instructing to start authentication processing in order to start communicating with a wireless communication apparatus;

a setting step of setting an authentication area narrower than a communicative area after authentication with respect to the wireless communication means when a start of authentication is instructed in the instructing step;

a first reception step of receiving a predetermined search signal by the wireless communication means after the authentication area is set in the setting step;

a transmission step of transmitting a response signal through the wireless communication means in accordance with reception in the first reception step; and

a second reception step of receiving authentication information through the wireless communication means after transmission in the transmission step,

wherein when authentication information is

received in the second reception step, communication is
subsequently performed with the wireless communication
apparatus on the basis of the authentication
information.

5   16.   A control method for an electronic device
including wireless communication means for
communicating with a predetermined wireless
communication apparatus and transmitting information of
a processing target, characterized by comprising:

10   an instructing step of instructing to start
authentication processing in order to start
communicating with a wireless communication apparatus;

            a setting step of setting an authentication area
narrower than a communicative area after authentication

15 with respect to the wireless communication means when a
start of authentication is instructed in the
instructing step;

            a first reception step of receiving a
predetermined search signal by the wireless

20 communication means after the authentication area is
set in the setting step;

            a transmission step of transmitting a response
signal, containing verification data contained in
received search information, through the wireless

25 communication means at time intervals based on time
interval instruction information contained in the
search information; and

a second reception step of receiving

authentication information through the wireless

communication means after transmission in the

transmission step,

5   wherein when authentication information is

received in the second reception step, communication is

subsequently performed with the wireless communication

apparatus on the basis of the authentication

information.

10   17.   A computer program for a wireless communication

apparatus which communicates with a mobile wireless

communication device and executes predetermined

processing, characterized by serving as:

wireless communication means for switching a

15   normal mode based on authentication information and an

authentication mode of performing communication in an

authentication area range narrower than an area range

in the normal mode;

detection means for detecting an intensity of a

20   signal received by the wireless communication means;

instructing means for instructing to start

authentication processing in order to start

communicating with a wireless communication device;

transmission means for setting the wireless

25   communication means in the authentication mode and

transmitting a search signal containing verification

data and response time interval data when a start of

authentication is instructed by the instructing means; and

authentication means for, when the response signal containing the verification data is received by

5   the wireless communication means from one wireless communication device at the response time intervals after the search signal is transmitted from the transmission means and when an absolute value of a reception intensity difference between the response

10   signals detected by the detection means is larger than a predetermined threshold T1 and less than a predetermined threshold T2 (T2 > T1 > 0), transmitting authentication information to the wireless communication device.

15   18.   A computer program for an electronic device including wireless communication means for communicating with a predetermined wireless communication apparatus and transmitting information of a processing target, characterized by serving as:

20   instructing means for instructing to start authentication processing in order to start communicating with a wireless communication device;

setting means for setting an authentication area narrower than a communicative area after authentication

25   with respect to the wireless communication means when a start of authentication is instructed by the instructing means;

first reception means for receiving a

predetermined search signal by the wireless

communication means after the authentication area is

set by the setting means;

5   transmission means for transmitting a response

signal containing verification data contained in

received search information through the wireless

communication means at time intervals based on time

interval instruction information contained in the

10   search information; and

second reception means for receiving

authentication information through the wireless

communication means after transmission by the

transmission means,

15   wherein when authentication information is

received by the second reception means, communication

is subsequently performed with the wireless

communication apparatus on the basis of the

authentication information.

20   19.   A computer-readable storage medium characterized

by storing a computer program defined in claim 17 or

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